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PLASMA SHEET THICKNESS AT JUPITER FROM GALILEO ELECTRON DENSITY MEASUREMENTS

Stephen J. Schultz, Jay A. Ansher*, Daniel L. Holland, Richard F. Martin, Jr., and Donald A. Gurnett

Department of Physics, Campus Box 4560, Illinois State University, Normal, IL, 61790, sjschul2@ilstu.edu.

Electron density has been determined by the Galileo spacecraft in Jupiter's magnetosphere by observing plasma waves measured by the plasma wave instrument onboard. As Jupiter rotates, the spacecraft encounters the plasma sheet twice during each ten-hour rotation period. Electron density is usually seen to increase as Galileo enters the plasma sheet, reaches a maximum value near the center, and then decreases as the spacecraft exits the plasma sheet. This behavior is clearest in the data at radial distances between $20 R_J$ and $50 R_J$ from Jupiter. The plasma sheet thickness is determined by recording the z-coordinate of the spacecraft as it enters and exits the plasma sheet. Our observations show a thicker plasma sheet in the western magnetotail and a thinner, more distinct sheet in the eastern magnetotail.